



# *The* FAIRWEATHER

## VISITOR'S GUIDE

### *Welcome to Glacier Bay National Park and Preserve,*

one of America's premier natural wilderness areas administered by the Department of the Interior, National Park Service. In addition to its abundant wildlife, glaciers and unsurpassed scenery, Glacier Bay is also recognized as having a world-class marine ecosystem. The park has been recognized internationally as both a World Heritage Site and Biosphere Reserve. In 1925, Glacier Bay National Monument (its original designation) was set aside to:

- protect the scenic beauty, glaciers, geologic landforms and diversity of life that is so abundant here
- provide for scientific research
- allow you, the park visitor, to experience and learn about these very special resources

There are many ways of enjoying your visit to the park: riding a cruise ship or tour boat; kayaking or camping in the backcountry; attending a ranger-led program or walk; or just spending some quiet time alone among the tall spruce trees, along the ocean shore, or on the deck of your vessel. Both the park staff and concessions are here to personally ensure that your visit is a safe, pleasant and memorable one. We welcome your questions, comments and ideas, and solicit your interest and help in caring for this magnificent resource. It is, after all, your national park. Have a wonderful visit!

Tomie Patrick Lee  
Superintendent





Photo by Tom Bear

## The FAIRWEATHER

### Project Managers

Patti Harper  
Chris Byrd

### Editor/Park Coordinator

Ingrid Nixon

### Contributors

Steven J. Anderson  
Fawn Bauer  
Jim Bodkin  
Ray Cozby  
Bill Eichenlaub  
Chris Gabriele  
Philip Hooe Ph.D.  
Fritz Koschmann  
Beth Mathews  
Ingrid Nixon  
Dr. John Piatt  
Dr. Tom Smith  
Rusty Yerxa

### Design

Kathy Lepley, Galaxy Graphics

### Printing

Anchorage Daily News

*The Fairweather* is published by the Alaska Natural History Association in cooperation with Glacier Bay National Park and Preserve. It is funded by revenue from association outlets.

©Alaska Natural History Association

## Doris Howe

In June of 2001, Glacier Bay National Park and Preserve lost a long-time friend when Doris Howe passed away. Doris served as the park's volunteer librarian for over 30 years, first assuming the role in 1966 when

her husband Bob became superintendent. A kind and gracious person, she worked countless hours to help make science and park-related information available to park staff and the public. She is dearly missed.



Photo by Denise Landau

# Table of Contents

## General Visitor Information

Exploring Bartlett Cove .....	3
Glacier Bay Weather .....	4
Recommended Clothing .....	4
Tides .....	5

## Camping Information

Camping in Bartlett Cove.....	6
BRFCs .....	6
Backcountry Camping and Kayaking .....	7

## Bear And Moose Safety

What to Do If You Encounter Wildlife ....	8 - 9
---	-------

## Park Management

Bartlett Cove Construction .....	10
A Tough Question: How Many Boats? .....	11
Land Designations .....	11
Hoonah Tlingit Presence in the Park .....	12

## Visitor Rules

Boating Basics .....	13
What About Fido? .....	13
Know Before You Go .....	13

## Wildlife .....

## Glaciers.....

## Science in the Park

Forage Fish Distribution.....	18
Bear Risk Assessment .....	18
Vessel Interaction Studies .....	19
Sea Otter Recolonization .....	20
Underwater Acoustic Monitoring .....	20-21
Sound Mapping Glacier Bay .....	21

## Hiking Trails

Trail Descriptions.....	22 - 23
Trail Map .....	22
Baneberry Warning.....	23

## Alaska Natural History

## Association .....

## Junior Rangers .....

## Park History Timeline .....

## Park Map .....

## Emergency

## Information.....

## Glacier Bay on the Web

Visit the park website at [www@nps.gov/glba](http://www@nps.gov/glba)



Photo by Chad Soiseh

# Exploring Bartlett Cove

*Find yourself with free time in Bartlett Cove?*

*Here are some ideas to help you make the most of your visit.*

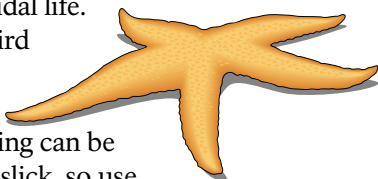
## ***If you just have a few hours...***

**Visit the National Park Service Visitor Center:** On the second floor of the Glacier Bay Lodge, you will find the NPS Information Desk and a variety of exhibits that explore the wonders of Glacier Bay. Hours for the Information Desk are posted on the bulletin board in front of the Lodge and at the desk. During the times the desk is open, books and other educational materials from the Alaska Natural History Association are available for purchase.

**Catch a Film:** The National Park Service shows several different films throughout the day in the Auditorium, located next to the exhibits on the second floor of the Glacier Bay Lodge. Film lengths vary from 15 to 26 minutes. See the bulletin board in front of the Lodge or at the Information Desk for show times.

**Walk the Forest Loop Trail:** Go on your own or with a ranger. (See trail details, page 22)

**Go for a Beach Walk:** The long stretch of shoreline south of the docks allows for a pleasant stroll. Low tide reveals a myriad of intertidal life. (Please walk carefully!) Bird watchers will find it's a terrific place to see land, shore and sea birds. Footing can be uneven and rocks can be slick, so use caution. Free tide tables are available at the Information Desk in the Lodge and at Visitor Information Station near the public-use dock.



**Take in an Evening Program:** Join a ranger in the Auditorium each evening for a presentation about the park. Topics change daily. See the bulletin board in front of the Lodge or at the Information Desk for program details and times.

## ***If you have half a day...***

**Join a Ranger for a Hike:** (June 1 through August 30)  
Each morning, a ranger leads a hike to a destination of his/her choice. Check with a ranger or the bulletin board for times. Come prepared with sturdy boots, water, a snack, and rain gear, if necessary. (Length: approx. 3 hours.)

**Hike to the Bartlett River.**  
(See trail details, page 22)

## ***If you have a full day:***

**Take a Tour Boat and See the Bay:** This all-day trip up to the glaciers should not be missed! For details and to purchase your ticket, see the Lodge Front Desk. Then make sure you are at the dock on time the morning of departure. Binoculars, extra film and warm clothing are highly recommended.

**Hike to Bartlett Lake.**  
(See trail details, page 22)

**Go for a Paddle:** There are several options for day kayaking around Bartlett Cove. You can take a guided kayak trip with Alaska Discovery (advanced reservations appreciated), or rent a kayak from Glacier Bay Sea Kayaks and paddle your own. Experience Glacier Bay up close. You never know what you might see!

**Become a Junior Ranger:** Kids can visit the ranger at the Information Desk to pick up their free Junior Ranger Adventure Book. Complete the steps and earn a nifty badge. The world can always use another Junior Ranger! (See page 25 for details.)



# Glacier-Making Weather

Glacier Bay has a maritime climate, heavily influenced by ocean currents. The result is mild winter temperatures and cool summer temperatures near sea level. Summer visitors can expect highs between 50°-to-60° F (10°-15° C). Winter temperatures rarely drop into the single digits, with average nighttime lows in the mid-20s and highs in the upper 30s.

Bartlett Cove receives about 70-75 inches of precipitation annually. You may find yourself thinking it's all coming down during your visit. April, May and June are usually the driest months of the year. September and October tend to be the wettest. All this moisture helps to create the lush temperate rainforests of the lower bay.

Keep in mind, these are weather conditions at sea level. Up in the mountains, conditions are more severe with colder temperatures and more precipitation that takes the form of snow. It's all that snow falling year after year that goes into creating the magnificent glaciers we love to see.

## What to Wear? What to Wear?

The weather in Glacier Bay can change quickly over the course of the day, especially if you are traveling up the bay. Dressing appropriately will enhance your trip by allowing you to stay out on deck and thus make the most of wildlife and glacier viewing. As you plan what to wear, keep in mind that it's usually best to dress like an onion — in layers.

Rather than wearing one bulky coat that you hope will do it all, layer your clothing so you may peel off clothing if things warm up and pull layers on again if things cool down. Remember: it's usually cooler when you are on the water and up near the glaciers.

## Working From the Outside In, Here are Some Suggested Layers:

- Rain- and windproof jacket and pants will help to protect you from liquid sunshine and cut the windchill, which will keep you warmer
- Thick insulating fleece or wool layer
- Turtleneck or T-shirt
- Polypropylene underwear tops and bottoms
- Sturdy footwear and warm socks

## Other Essentials Include:

- Warm hat that covers your ears
- Gloves
- Scarf or neck gaiter for your throat
- Sunglasses and sunscreen

Campers should discuss special clothing needs for backcountry travel with the Visitor Information Station staff during the camper orientation.

---

*“We have concluded that there are many infallible signs of rain in this region. If the sun shines, if the stars appear, if there are clouds or if there are none; these are all sure indications. If the barometer falls it will rain; if the barometer rises, it will rain; if the barometer remains steady, it will continue to rain.”*

— Geologist Harry Fielding Reid,  
Geikie Inlet, 1892

---

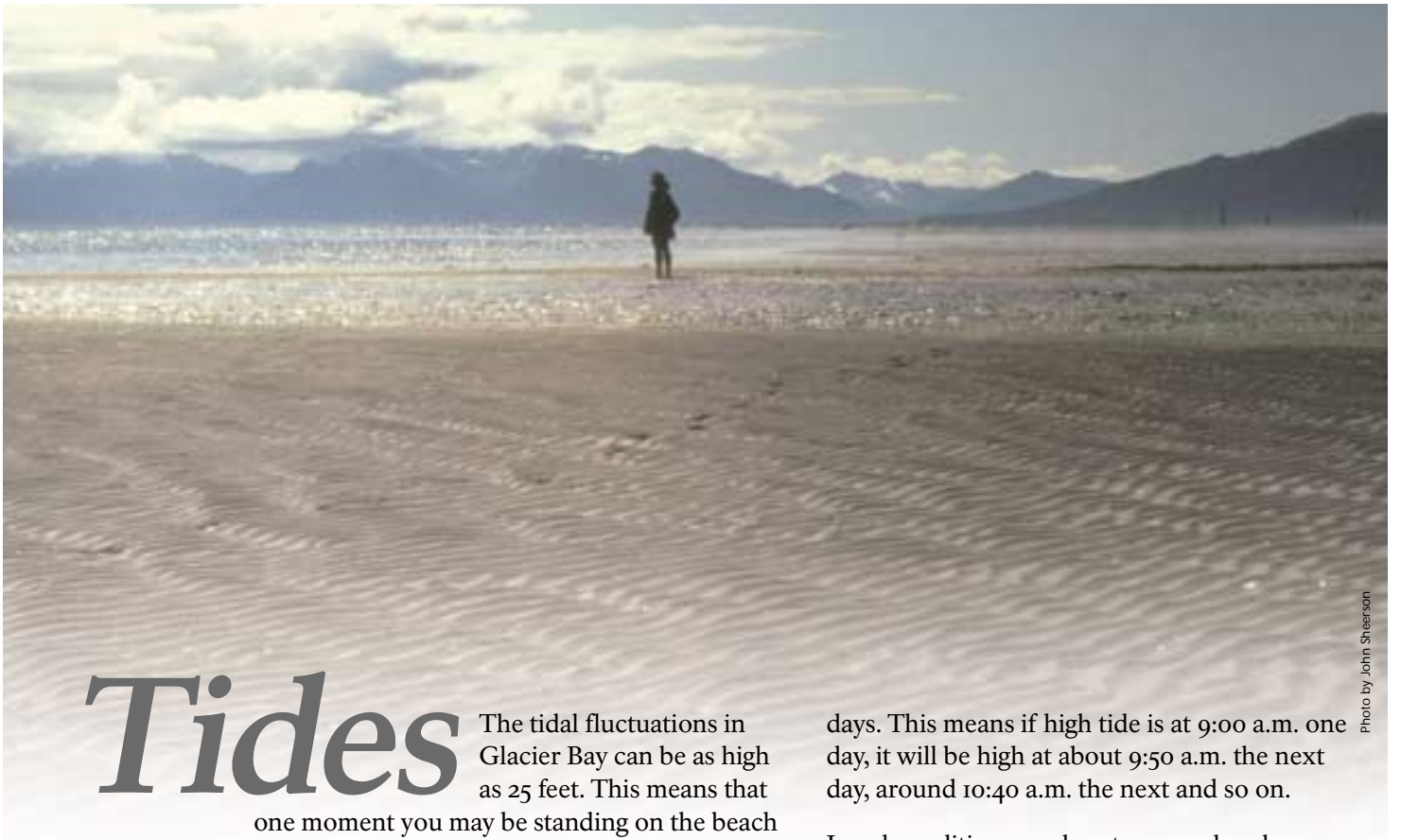


Photo by John Sheerson

# Tides

The tidal fluctuations in Glacier Bay can be as high as 25 feet. This means that one moment you may be standing on the beach looking at mud flats stretching out for 100 yards and hours later the water is lapping at your toes. Or worse: one minute you've pulled your kayak up on shore so you can enjoy lunch, but you wake up 30 minutes later from your post-lunch nap to see your kayak floating away.

Tides result from the gravitational pull between the sun and the moon, and their relationship to the earth. As these three celestial bodies are constantly in motion, the amount of gravitational pull varies and the tide levels change. Because it's closer, the moon has the strongest influence

---

*You hardly need to spend more than six hours in Bartlett Cove to realize that there is something interesting going on with the tides.*

---

on the tides. Its gravitational attraction causes the water surrounding the earth to bulge. It bulges on the side closest to the

moon due to gravitational pull. The bulge on the opposite side of the earth is due to centrifugal force.

There are usually two high and two low tides daily on the west coast. The times for highs and lows shift about 50 minutes later on consequent

days. This means if high tide is at 9:00 a.m. one day, it will be high at about 9:50 a.m. the next day, around 10:40 a.m. the next and so on.

Local conditions, such as topography, also influence the tides and the currents they generate. The entrance to Glacier Bay is narrow, yet a great deal of water must rush through that opening twice daily, creating currents in Sitakaday Narrows as strong as seven knots.

To see this incredible force in action, walk down to the water's edge about an hour after high or low tide. Fix your gaze on a shell or a piece of seaweed and watch how its proximity to the water's edge changes in just minutes. Be sure to keep that in mind when you decide to enjoy an after-lunch nap on your next paddling adventure.



NPS Photo





## BARTLETT COVE CAMPGROUND

# Camping in Bartlett Cove

For those ashore who carry their shelter with them, a free walk-in campground is located at Bartlett Cove. All campers must receive a camper orientation and permit from the Visitor Information Station (VIS), and follow rules for site selection, campfires, food storage, and trash removal. Wheelbarrows are available to help haul gear between the VIS, dock and the campground. Campfires are permitted in the beach fire ring only. See campfire information on Page 7 for regulations.



*“Keep close to Nature’s heart —  
and break clear away, once in  
awhile, and climb a mountain or  
spend a week in the woods. Wash  
your spirit clean”.*

— John Muir

## BRFCs Ruin Bear Picnic Fun

GLACIER BAY, AK — Two young brown bears on a recent foray in Glacier Bay had their picnic plans thwarted by campers using bear-resistant food containers.

“I thought we could find us some campers, scare them a little and get a tasty snack,” said Lester Bear. “Easy, right?”

Wrong. Unbeknownst to the hungry bruins, the campers had received a bear-resistant food container (BRFC) during their camper orientation. The containers are large cylinders, about 1-foot in diameter and 1.5 feet long, made of tough PVC plastic. The lid is held flush to the top with two screws, which require a screwdriver or coin to open. Campers are advised to keep all food and non-food items with a scent, like toothpaste, in the container and to store it a safe distance from camp.

Occasionally, bears do find the stashed containers, as was the case for these two. But the initial joy quickly turned to frustration.

“I couldn’t get my jaw around it,” said Chester Bear. “Couldn’t hook my claws on it. Couldn’t break it when I sat on it. And I’m a fat bear.”

After batting the vexing container around for a few minutes, the two gave up and went in search of spawned out salmon.

“If all the campers start carrying those things, it will sure take the fun out of dropping into camp,” said Lester Bear. “I don’t really like peanut butter and jelly anyway,” said Chester Bear. “It makes my teeth stick together.”

*Editor’s note: Campers have been offered free use of BRFCs during their backcountry visits since the mid-1980s. Stop by the Visitor Information Station and take a look.*

# Backcountry Camping and Kayaking in Glacier Bay National Park & Preserve

So you have finally arrived in Bartlett Cove and you are ready to set off into the backcountry. Your first stop should be at the **Visitor Information Station (VIS)** for a camper orientation. There you will learn the ins and outs of safe backcountry use, receive a bear-resistant food container to use at no charge during your trip and a permit.

Knowing what you are doing out there will help make your trip safer and enhance your enjoyment. It will also help to protect the park for future visitors.

**Below are a few key points to keep in mind for your backcountry adventure:**

**Closure Areas:** Certain parts of the bay are permanently closed to campers due to animal activity and/or resource protection. Other areas may be closed on a temporary basis. You are responsible to know and respect these closures.

**Food Storage:** It is essential we keep bears and other animals from getting human food. Cook and eat in the intertidal zone, where food scents and scraps will be washed away with the next high tide. Store all food, trash, and scented items like toothpaste in a bear-resistant food container at least 100 yards downwind from your camp. In forested areas, use of bear-resistant food containers is recommended. However, you may hang your food in a tree at least 10 feet up from the ground, 4 feet out from the base of the tree and 4 feet down from the branch. The tree needs to be 100 yards from your camp.

**Waste Disposal:** Within 1/4 mile of the shoreline, deposit human waste in the intertidal zone. Beyond 1/4 mile from shoreline, human waste should be deposited in a shallow pit at least 100 yards from ponds, lakes, streams and wet meadows. Burn toilet paper. Pack out all trash.



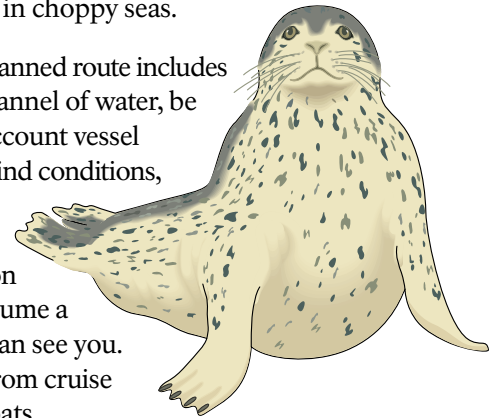
Photo by Ellie Shorman

**Campfires:** To lessen the impact to the land and because available wood is often wet, campers are encouraged to use camping stoves. Campfires are permitted below the high tide line or more than one mile from shore. Use only down and dead timber. Do not burn interglacial wood, which comes from the exposed remnants of ancient forests found on certain beaches around the bay. Ask a ranger for more details.

**Tides:** Tidal fluctuations in Glacier Bay can be as high as 25 feet. You will receive a free tide chart during your camper orientation. Keep it handy. Be sure to place your tent, pull your kayak, and store your bear-resistant food container well above high tide range.

**Tide Rips:** The forces of tides and currents can combine at certain places in the bay to create dangerous water conditions. Use caution when paddling in Sitakaday Narrows, Beardslee entrance, McBride entrance and the north shore of Adams Inlet. Better to change your route or wait for conditions to subside rather than risk flipping your boat in choppy seas.

**Crossings:** If your planned route includes crossing a wide channel of water, be sure to take into account vessel traffic, wave and wind conditions, and your kayaking skills before making the decision to cross. Never assume a motorized vessel can see you. Watch for wakes from cruise ships and other boats.



**Wildlife Etiquette:** Eking out a living in Glacier Bay's sometimes marginal environment can be tough for a critter. Respect all wildlife and do not approach animals. If an animal changes its behavior because of you, you are too close. Avoid walking or camping near nesting birds. Avoid molting ducks and other seabirds that may be in the water or on shore, especially in July and August.

**Bears:** Know how to behave around bears. (See bear information, page 8)

See the VIS rangers for your complete camper orientation. Ask questions. Be informed.

Have a safe trip!





# Bears

Glacier Bay National Park and Preserve is home to two of the three species of North American bears — brown (grizzly) bears (*Ursus arctos*) and black bears (*Ursus americanus*). Black bears are found primarily in the forested regions of the lower bay, including Bartlett Cove, while brown bears live mainly in the open, recently deglaciated regions of the upper bay.

## Which Bear is Which?

Telling the difference between the two species of bears can be tricky. Simply looking at the color doesn't help. Black bears can be black, brown, blonde, even blue/gray — as is the case of the rare race found in Southeast Alaska called the “glacier bear.” Brown bears can be any shade from honey-blonde to black. A few key physical characteristics can help to clarify just what type of bear you have spotted:

### Black Bears:

- Straight “Roman” facial profile
- Lack of a shoulder hump
- Prominent ears
- Short, curved claws

### Brown Bears (also called “grizzlies” in Interior Alaska):

- “Dish-shaped” facial profile
- Prominent shoulder hump
- Long, straight claws

Any bear close up looks big, but black bears average about 3 feet at the shoulder and can weigh from 125 to over 300 pounds. Brown bears measure about 3.5 feet at the shoulder and reach 8-9 feet when they are standing on hind legs. Adult brown bears average about 500 pounds. But some can weigh twice that amount.

## The Best Technique for Dealing with Bears?

### Avoidance: Bears Don't Like Surprises

- Make noise when you are out walking or hiking.
- Choose routes that offer good visibility.
- Avoid areas such as spawning streams and berry patches when they are most productive and likely to attract bears.
- Pay attention to the wind, which can blow your scent ahead of you giving bears plenty of notice that you are in the area.

### Be a Smart Camper

- Consider stopping to cook your meal, then continuing on for a distance to find a campsite for the evening.
- Avoid smelly foods like sardines, bacon and smoked fish.





NPS Photo

Fresh spring vegetation is important in the diet of black bears, which frequent the forests of the lower bay.

- Cook in areas that offer good visibility and only take out the foods you will need for any given meal. Leave the rest in the bear-resistant food container with the lid close by.
- Keep a clean camp. Store your food at least 100 yards downwind from your camp.
- Don't camp on animal trails.
- Pull your kayak and pitch your tent clear of the beach, which can be a highway for bears.

## What to Do If You Encounter a Bear

**If the bear does not notice you:**

- Back away out of sight from the bear and change your route.

**If the bear does notice you:**

- **Do not run. Stand still.** Bears are predators and running could trigger a predator/prey response. Bears can run up to 35 mph. Can you? Many bears will either run away from you or ignore you if they become aware of your presence.
- **Identify yourself as human.** Talk to the bear in a low, calm voice. Wave your arms above your head. Make yourself look big. Groups should come together. If the bear goes back to its business, slowly back away out of sight of the bear and change your route.
- **Stand your ground.** If the bear becomes interested in you, continue to wave your arms and talk to the bear. Bears are curious animals. They will investigate.



Photo by Mark Jefferson

More common in inlets of the upper bay, brown bears can be seen eating along beaches when the tide is low.

Occasionally, bears will charge directly at someone. Intimidating as that may be, the bear often pulls up short or veers off to one side before making contact.

- **Curl up in a ball and play dead.** If contact with the bear is imminent, fall to the ground and play dead. Curl up in a ball or lie flat facedown on the ground, interlace your fingers and place them behind your neck. Leave backpacks on. Do not move. Often a bear will back off once it feels the threat has been eliminated. Any movement on your part could renew the bear's interest and renew the attack. If a black bear continues biting long after you have assumed defense posture, fight back vigorously.

## A Common Moostake

Intimidating as a bear may be, that's not the largest land mammal around. That honor belongs to moose. Weighing in at 1000-1600 pounds and measuring six feet at the shoulder, moose are the largest members of the deer family and easily the biggest creature you might meet when you go for a walk. Though they may look docile as they nibble away at willow bushes, make no mistake: moose deserve your respect.

It's hard to know what goes on in the minds of moose. But it seems that a moose feels the need for personal space — a distance it likes to have around itself to feel secure. (People have this, too.) This space varies from moose to moose, but cows with calves and bulls during the rut are especially touchy. When something gets too close and the moose feels threatened, it may give chase, and given the opportunity,

stomp the perpetrator. The force of a moose's hoof powered by over 1000 pounds of animal can be deadly.

**If you encounter a moose:**

- Quickly walk or run to increase the distance between you and the moose. A moose will usually charge only a short distance, just enough to see the intruder is leaving.
- Try to get a tree between you and the moose, and continue to increase your distance.
- Change your route, giving the moose a wide berth.
- To avoid close encounters make noise while you hike. If a moose hears you coming, chances are it will choose to move away before you are ever aware it's nearby.



NPS Photo

## Building The Future *Construction In Bartlett Cove*

Anadromous fish, like this salmon, are born in fresh water, but make their way to the sea to mature. They return to freshwater streams to spawn before they die.

As you have undoubtedly noticed, Bartlett Cove is undergoing major rehabilitation and improvements to many of its facilities. Given our remote location, we must provide our own basic services such as water treatment, wastewater treatment, fuel, and power to the park and visitors. Most of the facilities that provide these services have had little improvement since the park established permanent staff here in the 1950s — a time when visitation to the park was around 1000 people annually. That number has grown considerably.

We are in the middle of a 5-7 year construction period during which most of Bartlett Cove's major facilities will be restored. Projects include paving of the entrance road, building a new public-use dock and fuel dock, constructing a new fuel farm, upgrading the power plant, adding a new state of the art wastewater treatment facility, new housing, and a new maintenance facility. These new and rehabilitated facilities will be safer, more environmentally sensitive and efficient.

Decisions regarding development — even small ones — are tailored to provide as much protection as possible to the park's natural and cultural resources.

For example, timing is a critical issue on the road project. To minimize disturbances to birds, we schedule all work that effects vegetation at times

other than during the prime migratory bird nesting season of April 15 to August 15. To avoid the sensitive season for anadromous fish in ditches and river tributaries, we must schedule work affecting those resources to take place between June 15 and August 15. Couple these special constraints with the short work season in Southeast Alaska and things begin to get complicated. Nevertheless, the project is progressing well and we anticipate a completion date for the road project of July 31, 2002.

This summer we ask that you please pardon our mess and try to do as we do: focus on the finished product. Upon completion, the new, improved Bartlett Cove facilities will provide for necessary, safe and appropriate visitor services, environmental protections, and a cost-effective, relatively trouble-free operation.

Thanks,

**Ray Cozby**  
Chief of Maintenance  
Glacier Bay National Park and Preserve

**Lt. Commander Steven J. Anderson**  
Park Engineer  
United States Public Health Service



# A Tough Question

## How Many Boats?

When you visit a national park, what you don't see can be just as important to your experience as what you do.

The overwhelming majority of visitors to Glacier Bay come in boats — both large and small. If you travel up the bay, you will see other boats throughout the day. But you will not see a large flotilla of vessels, each vying for a place before a calving glacier. The tough question is this: how many boats can be in the park at any one time before the park experience is diminished, the wilderness character is compromised, and the wildlife is affected?

The National Park Service is in the process of preparing an environmental impact statement (EIS) that will look at vessel numbers and potential impacts. Results from the EIS will help to determine the number of vessels — cruise ships, tour boats, charter boats, and private boats — that will be granted permits to enter the bay on a daily and seasonal basis.

Glacier Bay National Park and Preserve began a vessel management system in the late 1970s, when concerns arose that marine traffic might be adversely affecting endangered humpback whales that feed in the bay during the summer months. Park managers now recognize that vessels may directly or indirectly affect a large variety of marine and coastal wildlife, along with air and water quality and the character of wilderness recreation in the park.

Through the EIS process, the National Park Service is seeking to develop policies that anticipate and mitigate the potential effects of boat traffic. The process is scheduled for completion by January 1, 2004.

Questions and comments may be directed to:  
[glba\\_vessel\\_eis@nps.gov](mailto:glba_vessel_eis@nps.gov)






## What's in a Designation?

In 1925, President Calvin Coolidge used the presidential powers granted him by the Antiquities Act of 1906 to set Glacier Bay aside as a national monument. To this day, the Act continues to give presidents authorization to declare landmarks, structures, and other objects of historic or scientific interest as national monuments provided they are situated on lands owned or controlled by the government.

A national park designation requires an act of Congress. In 1980 with the passage of the Alaska National Interest Lands Conservation Act, Congress declared Glacier Bay

to be a national park. Preserve lands were added. Today's park and preserve totals almost 3.3 million acres.

The two different land designations —“**park**” and “**preserve**” — help to define the types of activities permitted in each area. Typically in national parks, hunting, mining, and other consumptive activities are not permitted. Preserve lands often have the characteristics associated with national parks but Congress has allowed for continued hunting, trapping, and other extractive activities.

 <b>Activities and their Appropriate Land Designation Venue</b>	<b>Glacier Bay Park Lands</b> 3,224,840 acres	<b>Glacier Bay Preserve Lands</b> 58,406 acres
<b>SPORT FISHING:</b> State regulations apply to fishing within the park and preserve. All persons 16 years and older are required to hold a valid Alaska State Fishing License, available during the summer months at Glacier Bay Lodge and some businesses in Gustavus.		
<b>HUNTING:</b> State regulations apply to hunting within the preserve. All persons 16 years and older are required to hold a valid Alaska State Hunting License.		
<b>FIREARMS:</b> Firearms are prohibited in the park. Firearms need to be turned into the Visitor Information Station for security. Aboard motorized vessels and in vehicles, firearms must be unloaded, unassembled and inaccessible.		

# Discovering the Essence

## *Glacier Bay as Homeland*

Imagine that you can hold Glacier Bay in the palm of your hand. It is smooth and round, about the size of a large egg. It is heavy, precious. Slowly you begin to peel back its layers, its meanings. The first layer, World Heritage Site, comes off. Next, you peel away the layer for the Biosphere Reserve. You are now looking at the layer for the National Park and Preserve. Gently you peel that away. Naked and vulnerable, wilderness trembles in your palm. As you marvel at the beauty, the fragility, something catches your eye. You realize that by holding the land up to the light just so, you can see another image distinct yet intangible as the morning mists. This new image reveals the essence of life for a group of people, the Hoonah Tlingit.

To the Hoonah Tlingit, Glacier Bay is not only the place in which they once lived, hunted, fished, collected eggs and berries. It is the center from which they gain their identity as people — their spiritual homeland.

The modern village of Hoonah is in Port Frederick on Icy Strait. Traditionally, four Hoonah Tlingit clans

occupied territories in and around Glacier Bay. Advancing glacial ice pushed them out of the bay about 800 years ago. The changing social and economic landscape at the turn of the 20th Century prevented their return. When Glacier Bay became a National Monument in 1925, its borders encompassed much of the traditional Hoonah Tlingit homeland. New federal laws severely curtailed Native activities within the monument boundaries. So began a painful period of Hoonah Tlingit and National Park Service relations.

But time has brought some healing. In recent years, the National Park Service has maintained an open dialogue with the Hoonah Tlingit and has actively encouraged them to return to the park to carry out traditional activities that are compatible with current regulations, such as berry picking. The park has sponsored boat trips for Hoonah school children and Elders to come into the bay so the youths may learn traditional ways of knowing in the very place that figures so prominently in their spiritual lives. Scientific studies are also underway to determine if it is possible to allow the Hoonah Tlingit to resume harvesting gull eggs, seals, and mountain goats within the park without adversely impacting populations.

You will find the Hoonah Tlingit presence in and around Bartlett Cove. The sea otter hunting canoe on display next to the Visitor Information Station was carved in the park in 1987 by a team of Native carvers under the direction of Elder George Dalton Sr. Sharp eyes will notice the two Tlingit trail markers carved into living spruce trees near Glacier Bay Lodge; one on the trail leading down to the dock from the lodge and the other along the Forest Loop Trail. Depicting an octopus and an eagle respectively, these carvings are modern renditions of markings originally used to show clan ownership over trade routes. Today, they serve as reminders of ancient ties to the land.

Ultimately, we will all carry within us slightly different versions of the essence that is Glacier Bay. We may guard it carefully. And from time to time, we can take it out to hold in our palm, to admire and share with others. Carefully peeling back the layers of our experience, we will rediscover the wonders we found to be sacred. And if we hold it up to the light just right, it might reveal something more.



Photo by Rosemarie Salazar

A ranger pauses during a walk along the Forest Loop Trail to talk about the Tlingit trail marker depicting an eagle that is carved into a living spruce tree.



# Ahoy Boaters!

All boaters are required to go through a **Boater Orientation** at the **Visitor Information Station (VIS)** prior to receiving a permit.

**During your stay in Bartlett Cove, please observe the following:**

- 3-hour limit at the Public-use Dock. After that, please anchor out.
- Do not leave vehicles or equipment unattended on the docks



Photo by Fawn Bauer

# Look High and Low... and in the Middle

*Ice, to an ecologist, is but an extreme form of snow, and it alters the landscape and affects the lives of animals in ways as profound and subtle.*

— Barry Lopez, *Arctic Dreams*

When the ice retreated in Glacier Bay, it left behind a scoured landscape of rocks and mud. But not for long. In time, plants returned to the seemingly sterile land. Eventually animals returned to the land and the waters within the bay. Today a wide variety of creatures call Glacier Bay home for at least part of the year, and the number could grow as more creatures find their way to this evolving landscape.

As you explore Bartlett Cove, or as you cruise up the bay, keep your eye out for some of these more frequently seen members of the community.

## By Land

**Moose** (*Alces alces*): The largest member of the deer family is a recent newcomer to the bay. The first moose was spotted here in the late 1960s. Despite their tremendous size (bulls can weigh 1600 lbs. and females 1300 lbs.), they can appear and disappear in thick brush with surprising stealth. Moose are usually solitary,



NPS Photo

except for cows with calves and during the fall rutting season. Cows give birth in the spring to one or two small delicate reddish calves, though usually no more than one survives. A calf will stay with its mother for two years before the cow drives it off as she prepares to have more young. Their diet includes willow leaves, grasses, herbs, and aquatic vegetation. Only bulls grow antlers.

**Mountain Goats** (*Oreamnos americanus*): Arguably the most dapper of Glacier Bay's mammals, mountain goats sport thick white coats of hollow hairs (that keep them warm in extreme weather), accented by black horns and hooves. Goats may have been among the first land animals to recolonize Glacier Bay after the ice retreated, coming over the mountains from Lynn Canal



NPS Photo

to the east. They are perfectly at home on the steep rocky cliffs in the mid-to-upper bay. The special shape and design of their hooves allows them to leap nimbly from ledge to ledge in search of grasses, herbs and low-growing shrubs. Seen at a distance, they are often mistaken for Dall sheep, which are found in the Interior.

**Porcupine** (*Erethizon dorsatum*): You may encounter



NPS Photo

this prickly member of the community high up in a cottonwood tree as it delicately nibbles the tender leaves it finds so tasty. Except for their footpads and nose, porcupines are completely covered with yellowish fur and quills, which are actually modified hairs tipped with barbs. A threatened porcupine will turn its back-end toward the source of trouble to present an intimidating display of quills that firmly suggests the would-be predator reconsider its dinner plans. This large rodent (second largest in North America behind the beaver) performs a broad repertoire of grunts, whimpers, and screams. Look and listen for them in the evenings waddling along "talking" to no one in particular.

And of course, **Black Bears and Brown Bears**.  
(See bear information, page 8)





NPS Photo

## By Sea

**Steller Sea Lion** (*Eumetopias jubatus*): Steller sea lions are gregarious and vocal. Like all members of the eared seal family *Otariidae*, they can support themselves on their flippers while ashore, and their rear flippers pivot, allowing the sea lion to get around with surprising speed. In the water they become



Photo by Jim Lufthy

pure poetry in motion, executing a seemingly endless series of underwater flips, turns and barrel rolls. Mature males can weigh almost 2,000 pounds, but females weigh a fraction of that, averaging 600 pounds. During mating season, large bulls compete at established rookery sites on Glacier Bay's outer coast to collect harems of females. Unsuccessful and immature males often congregate at haul-out areas, like at South Marble Island.

**Harbor Seal** (*Phoca vitulina richardsi*): If you are ever near the water and you feel like something is watching you, chances are it is a harbor seal. Look for their little domed heads just at the water surface as they pause to assess what's going on. Harbor seals have a dappled gray coat that can be highly variable between individuals. A thick layer of fat allows them to keep warm in otherwise chilling conditions. Unlike the sea lion, harbor seals have no external earflap, and when out of the water cannot support themselves on their flippers. On ice floes, they resemble plump sausages that move around by scooting along on their ample bellies. In the water they display admirable grace as they hunt for fish. Over 4,000 seals converge on Johns Hopkins Inlet each summer for pupping and mating.



NPS Photo

**Harbor Porpoise** (*Phocoena phocoena*): At 5 feet long and about 120 pounds, harbor porpoise are the smallest cetaceans in Alaska waters. Often seen in groups of 2 to 10 throughout the bay, they announce themselves by offering a brief glimpse of their small triangular dorsal fin cutting slowly through the water surface when they come



Photo by Bruce Paige

up to catch a breath. During their surface time, one rarely gets to see much else, though harbor porpoise are generally dark gray with a slightly pointed face. They do not ride bow wakes, like their relative the Dall's porpoise, which are larger (6.4 feet/300 pounds) and resemble small orca in their black and white coloration. Though Dall's porpoise can be seen in the bay, they are more often near the entrance and in Icy Strait.

**Sea Otter** (*Enhydra lutris*): Sea otters perform many of their daily tasks floating on their backs. In this prone position, their bellies make perfect tables on which to spread their latest picnic, such as a clam that they will crack open using a rock selected especially for this purpose. Following the meal, it's bath



Photo by Alex Andrews

time. Lacking a thick layer of blubber, otters instead have the densest fur of any mammal, with up to one million hairs per square-inch. In order to maintain its insulation qualities, the fur must be kept meticulously clean. Their skin fits loosely making it possible for otters to pull fur from all parts of their bodies to their mouths for cleaning. Females also do this for their young. Generally dark brown, their faces get whiter as they age, earning them the nickname of "old man of the sea."

# Blue Ice, White Ice

*If you've ever played with a prism in the sunlight, you know that natural light is made up of all the colors of the rainbow.*

Each color of light has a specific wavelength and certain amount of energy. Colors such as red and yellow have long wavelengths and consequently low energy. But blue, with its short wavelengths, has high energy.

Glacier ice is made up of large, tightly packed ice crystals. When sunlight hits glacier ice, the ice acts like a prism and separates the light according to its wavelength. Low energy colors like red and yellow are absorbed by the ice. Yet blue has enough energy to reflect out to our eyes.

If the surface of the glacier ice becomes weathered or if the ice contains many air bubbles, the blue light becomes diffused and absorbed. The ice appears white.



Photo by Ellie Sharman

*“The Master Builder chose for a tool, not the thunder and lightning to rend and split asunder, not the stormy torrent nor the eroding rain, but the tender snowflake, noiselessly falling through unnumbered generations.”*

— John Muir

## Glacier: A Definition

A glacier is born high in the mountains, where the only precipitation that falls is snow, and the snow that falls does not melt. A slight depression on the mountainside catches this snow. Year after year, the snowflakes pile up. Soon the sheer weight of this vast accumulation presses down on itself. The snow compresses. The flakes change shape and fuse into ice. Eventually the weight of the ice is too much for the depression to hold against gravity and the ice begins to flow downhill seeking equilibrium. Now that it's moving, it's a glacier.

Like a river, the glacier flows down the mountain choosing the path of least resistance. As it moves, it incorporates rocks into its lower layers. These acquired rocks grind away at the bedrock. In time, the glacial ice will carve deep valleys in the mountainside.

When the ice reaches lower, warmer elevations, it begins to melt. Eventually the loss through melting is greater than the supply of ice flowing down the mountain. The glacier ceases to make further progress, though the body of ice is still moving down the mountain. At this point, the glacier is like a one-way conveyor belt moving ice out of the mountains into the valleys.

Glaciologists have identified different “types” of glaciers based on their characteristics. For example, a glacier that remains confined within valley walls is a “valley glacier.” If it flows out of the valley and spreads out, it's a “piedmont glacier.” If it simply drops out of the valley, it's a “hanging glacier.” But the type of glacier most folks in Glacier Bay are interested in is the type that ends in the sea: the tidewater glaciers:

Compared to glacial ice, seawater is warm and highly erosive. Waves and tides work away at the unstable glacier face, causing huge chunks to “calve” or break off into the ocean.

Barring significant climate changes, a glacier is in a constant state of renewal. New snow will continue to fall in the mountain basin to replace the snow that has compacted into ice and begun to flow downhill. The length of time it takes for a snowflake that falls in the mountains to emerge at the end or “terminus” of a glacier varies, depending on the speed at which the glacier is flowing. Scientists estimate ice you see at the face of Glacier Bay's glaciers to be around 200 years old.





Photo by Bruce Paige

# Glaciers: They are a-changin’

It has been said that you cannot step twice into the same river. In a sense, the same holds true for rivers of ice that we call “glaciers.” A glacier is always growing, melting, moving or calving somewhere. You don’t need to linger long at the face of a tidewater glacier to get a sense of the drama. Calving occurs year-round. The glacier face you see today could change significantly by tomorrow, let alone 20 years from now.

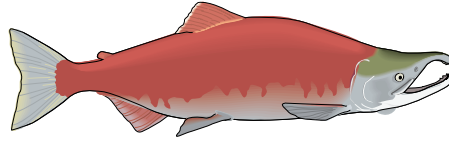
Researchers are interested in these glacial dynamics and their causes. Scientists at the U.S. Army Cold Regions Research and Engineering Laboratory (CRREL) continue to conduct long-term glaciological research on present and past glacial activity in the region. Another team continues to conduct photographic surveys of the ice margins to document the long-term changes in the bay’s glaciers — a study that began in 1927.

Changes in glaciers and ice fields could reveal changes in weather patterns and climates on a local, regional and perhaps even global scale.

*Dr. Dan Lawson and Dr. Lewis Hunter of the CRREL provided the glacier dimensions below for the year 2001.*

<i>Glacier</i>	<i>Height (in Feet)</i> Above and Below Waterline	<i>Width (in Miles)</i>	<i>Length (in Miles)</i>	<i>Movement (in Feet)</i> Estimated Figures Noted	<i>Status</i>
Grand Pacific	60-180 above 0-60 below	2	35	Western edge: 4 / day 1500 / year Eastern edge: 150-180 / year	Receding
Johns Hopkins	250 above 200 below	1	12	8 / day 3000 / year	Advancing
Lamplugh	150-160 above 10-40 below	.75	16	Estimated 900-1000 / year	Receding
Margerie	250 above 100 below	1	21	6 / day 2000 / year	Stable
McBride	200 above 270 below	.5	14	Estimated 3000 / year	Receding
Muir	150 above	.5	13	.5 / day 150 / year	Receding
Reid	150 above 10-30 below	.75	10	Estimated 15 / day	Receding
Riggs	40-90 above	.75	15	Estimated 100-400 / year	Receding

# Science in the Park



## Forage Fish Distribution & Abundance in Glacier Bay

Glacier Bay is home to a variety of marine mammals and seabirds, most of which are attracted by the abundant food resources available here. While many of these species are heavily dependent on certain species of fish, until recently little has been known about the distribution and abundance of these “small schooling fish” in Glacier Bay.

Though individually small, these forage fish are quite numerous, often swimming in large schools. They are a vital link in the marine food web because they transfer energy between primary and secondary producers, such as plankton, to top predators such as puffins and whales. Some of the common forage fish species are Pacific sand lance, capelin, juvenile Pacific herring, juvenile walleye pollock, smelts, and juvenile salmonids.

The small schooling fish study was established to provide baseline information on the distribution of forage fish species, and to identify critical forage fish habitat in Glacier Bay. For example, several key Alaskan forage fishes (capelin, herring, and sand lance) may spawn in the intertidal zone close to shore. These areas may be critical to the survival of these species, but are highly vulnerable to shoreline disturbance or pollution.

Park managers will be able to use results from this study to better ensure that identified critical habitats are safe from human damage.

**Principal Investigator: Dr. John Piatt**

## Bear Habitat / Campsite Risk Assessment

Campers may one day sleep a little better as a result of a bear habitat/campsite risk assessment research project currently underway in the park.



NPS Photo

Campers and bears often find themselves competing for the same spots, as scenic camping opportunities often coincide with prime bear foraging areas. As a result, bears and humans sometimes clash, with incidents of equipment damage, habituation of bears to people, and periodic closure of various areas of the bay to camping. At the same time, those bears that avoid human activity may be denied important food resources on Glacier Bay’s productive beaches.

The research project focuses on determining what types of areas have a high likelihood of a bear encounter. Two biologists are spending the summer kayaking to various campsites conducting detailed habitat assessments. This involves mapping critical bear habitat at frequently used campsites, as well as recording other risk factors associated with bear encounters.

This information will help park managers identify the characteristics of an area that may increase the risk of a bear encounter. Campers can then be directed away from “high risk” areas. The goal is to provide a safer camping experience and to minimize disruption of natural bear activity on Glacier Bay’s beaches.

**Principle Investigator: Dr. Tom Smith**



Photo by Carol Acuna

## Harbor Seal/Steller Sea Lion Monitoring & Vessel Interaction Studies

A long-term study has shown that harbor seals in Glacier Bay have been declining in numbers during the past decade, while at the same time Steller sea lions appear to be increasing. But researchers aren't sure if these are natural fluctuations due to ecosystem change or, in the case of the seals, at least partly the result of human activities.

Researchers from the National Park Service and University of Alaska Southeast conduct population counts of harbor seals and Steller sea lions in Glacier Bay annually. Observers count seals from fixed observation stations on land as well as by aerial surveys, while sea lions are usually counted from boats.

The relative importance of these counts in Glacier Bay has increased since Steller sea lions have been declared a threatened species and harbor seals

have been considered for listing as "depleted."

The counts have shown that the number of seals present at haulouts in Glacier Bay has been steadily declining from an estimated 6,300 in 1992 to about 3,600 last year. During the same time, however, a non-breeding Steller sea lion colony on South Marble Island has increased to over 500 sea lions in recent years, and a new sea lion rookery has been confirmed at Graves Rocks near Cape Spencer with up to 400 animals observed.

In future studies, researchers hope to determine if the declines in harbor seals are due to natural environmental factors or if human disturbance plays a role.

**Principal Investigator: Beth Mathews**

## Science in the Park

For more information on these and other research projects going on in the park, visit these web sites:

[www.absc.usgs.gov/glba/glba\\_prog.htm](http://www.absc.usgs.gov/glba/glba_prog.htm)

[www.nps.gov/glba/learn/preserve/projects/index.htm](http://www.nps.gov/glba/learn/preserve/projects/index.htm)





Photo by Alex Andrews

## Ecology of Sea Otter Recolonization in Glacier Bay

Sea otters, once nearly eliminated by fur hunters, have made a spectacular comeback throughout the North Pacific following reintroductions about 30 years ago. But until recently otters had not recolonized Icy Strait or found their way into Glacier Bay. Now that is changing, and with that change has come an opportunity for scientists to study the effects of the otter's return on the ecosystem.

Since 1995 when the first five otters were counted in Glacier Bay, the population has grown to an estimated 1,590 by 2001. Because sea otters consume large quantities of clams, mussels, crabs and other invertebrates, this increase in otter numbers can cause long-term changes in the ecosystem. Since sea otters were not seen here before 1995, Glacier Bay provides the perfect opportunity to study an area before and after their introduction and learn exactly how these changes occur.

The current study is divided into three parts. First, aerial surveys are flown yearly to determine the otters' population size and distribution in Glacier Bay. Second, researchers watch foraging otters through telescopes from land at several sites to determine exactly what otters are eating and where. In the third portion of the study, researchers collect and measure clams in several locations so they can later compare the size and number of clams present before and after the otters arrived.

As the recolonization of the bay by sea otters continues, it is likely that dramatic changes will occur in the composition, abundance, and size of many species in the marine ecosystem. These studies will help managers to differentiate between naturally occurring changes and those caused by human activity.

**Principal Investigator: Jim Bodkin**

## Underwater Acoustic Monitoring

The songs of whales and other marine mammals have been researched and recorded around the world, but until recently little has been known about the underwater soundscape at Glacier Bay. Now, with the aid of an underwater listening device, park scientists can listen in on humpback whale songs and other undersea sounds while working at their desks.

In May 2000, park staff and U.S. Navy acousticians installed the device — called a hydrophone — near the entrance to Glacier Bay. The hydrophone transmits underwater sounds through a cable to a computer workstation at park headquarters in Bartlett Cove. For park staff this has provided an exciting new

opportunity to experience firsthand the underwater sounds of the lower bay. It may also prove to be of great benefit to the marine mammals that inhabit that environment.

Humpback whales feed continuously during summers in Glacier Bay. Research shows that whales may move away from preferred feeding areas when disturbed by vessel sounds. Gathering underwater sound data will allow park managers to evaluate its vessel management policies. For example, acoustic data will tell them whether the lower bay is quieter on average when there is a 10 knot speed limit in effect, compared to when the speed limit is 20 knots.

# Using Sound to Map the Bottom of Glacier Bay

What do whales, bats, and USGS scientists at Glacier Bay have in common? All three are using sound to explore their environment. For the past two years, geologists and biologists have been working together to map the underwater habitats of Glacier Bay. Sound is used in two ways. The first is called a “side-scan sonar,” which paints a picture of the bottom by sending out sound and timing the return echoes. The second device, called a “sub-bottom profiler,” sends out much louder sounds that can actually penetrate the sea floor and return information on the type of bottom and the depth of sediments. Why do scientists and many marine species use sound to understand their environment? Light and radio waves do not penetrate water very well but sound travels long distances underwater with little change.

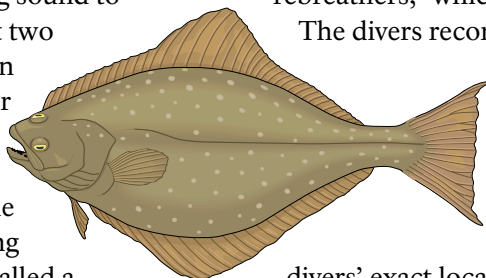
Once a grainy picture of the bottom is produced using sound, scientists need to visit the sea floor in person to see what the different objects in the images actually are. This process is called “ground-truthing.” Video cameras can be used, but by themselves they only return limited information. Performing ground-truthing in Glacier Bay is difficult because of the cold water and the long dive times at great depth. To overcome these challenges,

divers at Glacier Bay use a new diving technology called “rebreathers,” which recycle the air after it is breathed.

The divers record the different rocks, sediments, plants and animals that they see on the bottom; they also film these observations for later analysis. The divers themselves carry two sound emitting devices. One allows the boat on the surface to know the divers’ exact location, and the other allows the divers to transfer their observations to the boat.

Mapping the underwater habitats of Glacier Bay will greatly aid in understanding the distribution, abundance, and living requirements of many marine species of special concern to the park. Although ground-truthing has just begun, scientists have already discovered physical features that are important to various species, including pits used by groups of molting male Dungeness crabs. Geological discoveries are also being made. For instance, much of the floor of the bay has deep and extensive “furrows.” These were probably caused by huge icebergs that plowed through rocks and boulders on the bottom during the period of greatest glacial retreat, in the 1700s and 1800s.

**Principal Investigator: Philip N. Hooke Ph.D.**



Once researchers have collected data on the sound levels marine mammals are exposed to and how much variability in sound levels there is on a daily basis, the park will work with Navy acousticians to develop “noise goals.” These noise goals will then help guide the park’s vessel management practices.

**Principal Investigator:  
Chris Gabriele**



Photo by Tom Bean



NPS Map

## These Boots Were Made for Walking: *Trails in Bartlett Cove*

You've probably done a fair bit of traveling to get here and may have a hankering to stretch your legs. There are three maintained trails near the Glacier Bay Lodge. All offer relatively easy walking. You will find the following gear useful:

- Sturdy, water-repellent footwear
- Raincoat and hat
- Insect repellent
- Binoculars
- Camera, fast film and tripod

### Forest Loop Trail

(Distance: 1 mile loop /  
Time: 30 min.-1.5 hours)

This loop trail will take you through both the

temperate rainforest and the beach environments of Bartlett Cove. You may begin your walk either in front of the Lodge (just off the parking lot) or south of the boat ramp between the docks. The trail surface varies between dirt, gravel and boardwalk. It can be muddy in spots. Two benches and viewing platforms along the way beg you to pause and take in the sights and sounds of the spruce/hemlock forest. Rangers lead guided walks along this trail every afternoon. Check the bulletin board in front of the Lodge for the scheduled time.

### Bartlett River Trail

(Distance: 4 miles round-trip / Time: 4-5 hours)

This trail meanders along an intertidal lagoon and through the spruce/hemlock forest before emerging and ending at the Bartlett River estuary. The trail is not difficult, but it can be muddy during rainy periods. Exposed tree roots can be slick. Watch for coyotes, moose, bear and river otter along the beach. Ducks, geese and other water birds concentrate in the intertidal area during migrations and molting. Salmon run up the river in the latter part of the summer, which attracts hungry harbor seals.

### Bartlett Lake Trail

(Distance: 8 miles round-trip / Time: 7-8 hours)

Begin walking on the Bartlett River Trail. About 3/4 of a mile down the trail at a signpost, the lake trail will branch off and begin to climb the



NPS Photo

This female common merganser is just one of many bird species that can be seen in and around the Bartlett River estuary.



# Baneberry: Deadly Temptations



Photo by Gary Stolz

Glacier Bay has a myriad of tasty berries that ripen over the summer. Blueberries, salmonberries, beach strawberries and currants — just to name a few. But there is one berry you do not want to eat.

Baneberry (*Acraea rubra*), a member of the buttercup family, is aptly named. “Bane” is derived from an Anglo-Saxon word meaning “murderous.” All parts of the plant are toxic. It is common around Bartlett Cove on the edges of forests, along stream banks, and roadsides.

The stalk grows from two to four feet high. Its thin, heavily veined leaves have deeply toothed edges. In the spring, it produces a cluster of small white flowers above the leaves. In July and August, hard shiny berries appear. These can be either candy-apple red (most common) or white.

Mature berries have a dark spot, which has earned them the nickname of “dolls eyes.” But there is nothing playful about this plant. Ingesting one berry can cause numbness in the mouth and tongue. The poison in three berries is enough to kill a child. Six berries will effectively shut down the respiratory system in adults.

The best rule to follow if you are sampling wild plants: if you aren’t sure what it is, don’t eat it.

moraine. This trail is less maintained than the other trails so use caution to not lose the route. The chatter of red squirrels will accompany you as you wind your way over and around moss-covered boulders and lichen-covered trees before reaching the shores of Bartlett Lake. During this full-day journey, you may be richly rewarded in solitude and perhaps even the call of loons. Bring water, lunch and raingear, and be sure to tell someone where you are going and what time you expect to be back.

A free “Discover Bartlett Cove” brochure is available at the Visitor Information Station and NPS Information Desk, located on the 2nd floor of Glacier Bay Lodge.

If you have any questions, ask a ranger.

*Have a great hike!*

## A Slip of the Foot

Due to the amount of moisture here in Glacier Bay, walking can be tricky. Wet decks, wooden walkways, logs, rocks, and tree roots can be very slippery and create tripping hazards. Muddy pathways can be slick. To minimize risk, wear sturdy shoes with good traction and use handrails wherever available. Watch where you are stepping and take your time!



Photo by Rosemarie Salazar



# The Alaska Natural History Association



Alaska is a naturally beautiful place. This beauty emerges from Alaska's extensive public lands—approximately 80% of the state. Increased visitation to public lands results in an increased need for visitor services. Unfortunately, shrinking government budgets make it harder and harder to offer services to the many visitors and neighbors of public lands in Alaska. Nonprofit organizations, such as the **Alaska Natural History Association**, help fill these gaps and provide either direct services or vital support for ongoing educational experiences that people enjoy in our public places. **The Association** shares the natural and cultural history of Alaska's amazing lands by:

- **Enhancing** visitor experiences through information, exhibits and displays.
- **Publishing** books and other educational materials, including the *Fairweather Visitor's Guide*.
- **Earning** vital financial support for educational and scientific programs.
- **Operating** over 50 bookstores in public land visitor centers throughout Alaska.

Become a member and order informative books, videos and other materials by visiting the Association store or by contacting:

**Alaska Natural History Association**  
 750 West Second Avenue, Suite 100  
 Anchorage, AK 99501  
 Toll-free 866-AK PARKS  
 1-907-274-8440  
[www.alaskanha.org](http://www.alaskanha.org)

## For Your Trip

Visit the Association Bookstore in the Visitor Center to find these useful guides. In addition to books, visitors will also find maps, journals, posters, field bags and more. Revenue from sales of these items helps fund interpretive educational materials and programs.



# Become a Junior Ranger

If you are between the ages of 6 and 12, you may want to become a Junior Ranger during your park visit. Stop by the Visitors Center on the second floor of the Lodge when it's open to pick up a Junior Ranger Adventure Book. When you have finished the activities, bring your booklet to a ranger and you will be awarded a special badge that makes you a Glacier Bay National Park & Preserve Junior Ranger!

Here are a few activities to get you started. If you need help with any of these activities, please ask a ranger. Good luck and have fun!

## Who am I?

- 1) ☉ I begin and end my life in a river, but I spend the majority of my time in the ocean.
- ☉ I eat small fish and bugs.
- ☉ Some of my nicknames include: humpy, red, silver, king, and dog.

Who am I? \_\_\_\_\_

- 2) ☉ I drink both the nectar of flowers and blood.
- ☉ I like stagnant pools of water best.
- ☉ There are more of me in the Arctic than anywhere else in the world.
- ☉ When I bite you, my saliva makes you itch.

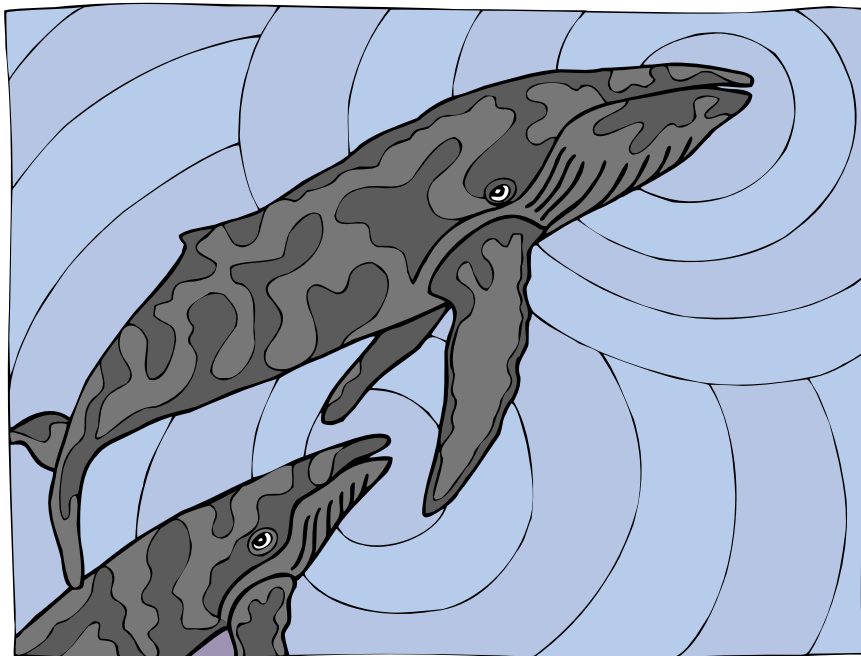
Who am I? \_\_\_\_\_

- 3) ☉ I am a small member of the gull family.
- ☉ My wing tips look like they are dipped in black ink.
- ☉ I like to fish near where glaciers calve and meltwater streams meet the sea.
- ☉ In Glacier Bay, I nest in large colonies on cliffs near the Margerie Glacier.

Who am I? \_\_\_\_\_

Answers: Who am I?

1. Salmon 2. Mosquito 3. Kittiwake



## Glacier Bay Word Scramble

All of the animals below are found in Glacier Bay. How many can you find? The words may be horizontal, vertical, diagonal or backward. Good luck!

MOOSE SPRUCE GLACIER  
BEAR HUMPBAC AGLE  
SEAL HALIBUT

K	C	A	B	P	M	U	H
S	E	A	L	R	O	T	O
A	P	R	A	A	O	L	S
T	O	R	C	T	S	R	T
B	E	A	U	I	E	A	R
H	G	L	A	C	I	E	R
A	E	L	G	A	E	B	I
T	U	B	I	L	A	H	N



# A Brief Timeline of Glacier Bay

## *Human History and Events*

**Prehistoric to present:** Tlingit Indians and their ancestors had both permanent and seasonal settlements in much of what is now Glacier Bay National Park and Preserve. Several hundred years ago at the end of the Little Ice Age, advancing glaciers forced the Tlingit people to abandon their villages and move to Hoonah, across Icy Strait from Glacier Bay.

Today, many Hoonah Tlingits still regard Glacier Bay as their ancestral home, and feel a special connection to it.



Photo by Rosemarie Salazar

1750

1800

1850

**1778** Captain James Cook of the H.M.S. Resolution names Mt. Fairweather. His crew includes George Vancouver and William Bligh.

**1750** The Little Ice Age is ending and the glaciers begin to retreat.

**1794** Captain George Vancouver of the H.M.S. Discovery and Lt. Joseph Whidbey describe Glacier Bay as "a compact sheet of ice as far as the eye could distinguish." The "bay" is a mere 5-mile indentation in the coastline.



Courtesy of the Dave Bohn Collection

**1879** Guided by Tlingit Indians from Fort Wrangell, John Muir enters the bay in a dugout canoe accompanied by a Presbyterian missionary named S. Hall Young. Glacial ice has retreated into the bay 40 miles since 1794.

**1883** Captain James Carroll aboard the mail steamer *Idaho*, names an inlet and glacier in honor of John Muir.

**1890** Muir makes his third visit to Glacier Bay, this time constructing a cabin at the base of Mt. Wright. He makes extensive observations of glaciers and explains the interglacial tree stumps.

**1900**

**1953** Canadian Pacific Steamship Company brings the first modern cruise ships into the area.

**1916** William S. Cooper, ecologist from the University of Minnesota, arrives in Glacier Bay to begin a study of plant succession. He returns five more times between 1921 and 1966.

**1924** April 1, President Calvin Coolidge temporarily withdraws Glacier Bay area at the request of Interior Secretary Work.

**1950**

**1992** Glacier Bay National Park and Preserve — together with Wrangell/St. Elias National Park (Alaska), Kluane National Park Reserve (Canada) and Tatshenshini-Alsek Provincial Park (Canada) — becomes part of a 24-million-acre World Heritage Site, the largest internationally protected area in the world.

**1980** The Alaska National Interest Lands Conservation Act is signed into law. Glacier Bay becomes a national park. Preserve lands are added. The new park and preserve total almost 3.3 million acres.

**2000**

**1899** On September 10 a tremendous earthquake centered in Yakutat Bay causes rapid and extensive calving in Glacier Bay, leaving the waters ice-choked and impassable to ships.

**1884** Captain Carroll pilots the side-wheel steamer *Ancon* to Muir Glacier, which will become a popular tourist destination until the 1899 earthquake.

**1880** Guided by a Tlingit Indian named Tyeen, John Muir and Young return to visit Taylor Bay, Dundas Bay and what will become known as Muir Glacier. Stickeen, a small dog, is part of the expedition.

**1939** A presidential proclamation by Franklin Roosevelt doubles the size of Glacier Bay National Monument.

**1925** President Coolidge establishes Glacier Bay National Monument on February 26.

**1922** Cooper suggests national monument status for Glacier Bay to the Ecological Society of America.

**1966** Glacier Bay Lodge opens.

**1986** Glacier Bay National Park and Preserve, along with Admiralty Island National Monument, is designated an International Biosphere Reserve.

**1995** The National Park Service and Hoonah Tlingits sign a Memorandum of Understanding, establishing a working relationship.

**1998-1999** Congress passes legislation regarding the management of commercial fishing activities in Glacier Bay National Park.

**2001** About 359,000 people visited Glacier Bay National Park and Preserve.

